REMARKS/ARGUMENTS

Amendments to the Specification

Page 1 of the specification has been amended to include a cross-reference to the corresponding U.S. provisional application and further amendments have been made to correct typographical errors. In addition, pages 11 and 12 have been amended by deleting the paragraphs starting on page 11, line 18 and ending with paragraph beginning on page 12, line 13 to avoid repetition of previous paragraphs. In addition, page 11 has been amended to include statements which correspond to amended independent claims 1 and 12.

Claim Amendments

Original claims 2 to 11 have been canceled in favour of new claims 89 to 106, which are based on original claims 2 to 11 and the specification as originally filed.

New claim 1 has been amended to specify that the controller controls the data carrying capacity of the signal based on one or more of: (1) a condition of the wireless signal received by a wireless receiver and (2) an indication of a condition in the path of the wireless signal which affects transmission of the wireless signal.

Independent claim 12 has been amended by changing the term "an apparatus" to "a fixed-position wireless transmitter", which is supported, for example, by the description in the paragraph bridging pages 42 and 43. Claim 12 has further been amended by specifying that the generated wireless signal is at a frequency which causes the wireless signal to be attenuated by atmospheric precipitation, and that the power of the generated wireless signal is controlled within a range reserved to compensate for attenuation by atmospheric precipitation. These amendments are supported by the specification as originally filed, including, for example, the paragraph bridging pages 42 and 43. Dependent claims 13 to 16 have likewise been amended by changing the term "apparatus" to "a fixed-position wireless transmitter" for consistency with new

independent claim 12. New dependent claims 107 to 110 either directly or indirectly dependent on claim 12 have been added and which are directed to additional features of the fixed-position wireless transmitter recited in claim 12.

Claims 17 to 44 have been amended by specifying that the "transmitter" is "a fixed-position transmitter", which is again supported by the description, for example, in the paragraph bridging pages 42 and 43.

Independent claim 51 has been amended by specifying that each of the wireless transmitters are fixed-position wireless transmitters and to clarity that the signal indicative of interference identifies the wireless transmitter causing the interference.

Independent claim 55 has also been amended to specify that each of the wireless transmitters are fixed-position wireless transmitters, and similar amendments have been made to independent claims 62, 69, 70 and 86 to 88.

Independent claim 71 has been amended to include the additional features of claim 72.

Original claim 63 has been recast as a dependent claim (new claim 111) and new dependent claims 112 to 115 correspond to original claims 64 to 67, respectively.

Objections under 35 U.S.C. Paragraph 112

Referring to the Examiner's objection to claims 19 to 21 under 35 U.S.C. Paragraph 112, claims 19 to 21 have been amended by replacing the term "value" with "maximum power level", for consistency of terminology with claim 18.

Novelty Objections under 35 U.S.C. Paragraph 102

The Examiner rejects original claims 1 to 6, 8 to 41, 43 to 72 and 75 to 88 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,504,938 (Redden). In particular, the Examiner alleges that Redden discloses an apparatus/transmitter/controller/method for generating a signal for wireless transmission comprising signal generating means for receiving data and generating a signal containing received data for wireless transmission, and control means for controlling the data carrying capacity of the signal (column 2, lines 4 to 23; Figures 2 to 4 and accompanying text). The Examiner further alleges that Redden discloses control means adapted to control at least one parameter (signal quality, power, amplitude of a signal, etc., which reduces antenna pattern) defining the data carrying signal (column 7, lines 12 to 60). The Examiner further considers that Redden discloses encoding means via controller 84 and processor 60 (column 7, lines 12 to 60).

Applicant submits that new claim 1 distinguishes over US 5,504,938 (Redden) for the following reasons.

Redden discloses a satellite cellular communication system in which a number of satellites orbiting the earth each have a number of antennas and each antenna projects an antenna pattern on the surface of the earth. The antenna pattern (otherwise known as the "footprint" of the satellite antenna), as described in column 1, lines 23 to 27, defines a cell whose area is defined by a broadcast channel transmitted by the satellite antenna being greater than some predetermined level and which is less than that predetermined level outside the cell, as described in column 9, lines 20 to 25. As the satellite orbits the earth, the antenna pattern moves over the earth's surface between relatively low populated areas, where demand for communication with the satellite antenna is relatively low, and more densely populated areas, where demand for communication with the satellite is relatively high. The system disclosed in this document is concerned with the problem of managing demand for communication within a cell where the demand exceeds the capacity of the satellite to service communications within that cell. To solve this problem, the satellite monitors real time demand for communication services within the cell

and reduces the power of the broadcast channel when the demand level is near its capacity, as described for example in column 10, lines 33 to 40. This has the effect of reducing the size of the cell at the earth's surface, thereby encouraging subscriber units in regions near the periphery of the originally sized cell to handoff traffic communication to an adjacent cell, as described in column 10, lines 41 to 56, in conjunction with Figure 7. This reduces the demand for satellite communications within the cell and prevents communication overload. It is to be noted that the broadcast channel broadcasts messages to all subscriber units within a particular cell and the subscriber units measure the strength of the broadcast signal to determine whether to remain within the cell (if the signal strength is sufficiently high) or to handoff to another cell (if the broadcast signal strength is lower than that of an adjacent cell). It is also to be noted that although the strength of the broadcast signal from the satellite changes, the signal strength of the traffic channels remains unchanged, so that subscriber units that remain within the cell remain in communication with the original cell as described in column 10, lines 51 to 56.

In contrast, the apparatus defined in claim 1 comprises, *inter alia*, signal generating means for receiving data and generating a signal containing received data for wireless transmission, and a controller for controlling the data carrying capacity of the signal. Applicant submits that there is no disclosure or suggestion in Redden of an apparatus having these features. In particular, there is no disclosure in Redden of any controller which controls the data carrying capacity of a wireless signal. The Examiner alleges that an apparatus having signal generating means for receiving data and generating a signal containing received data for wireless transmission and control means for controlling the data carrying capacity of the signal is disclosed in column 2, lines 4 to 23 and Figures 2 to 4 of Redden. However, we submit that there is no disclosure in column 2 (or in any other part of this document) of any controller for controlling the data carrying capacity of a wireless signal. Rather, column 2, lines 4 to 23 discloses a method for controlling cell loading in a cellular communication system comprising the step of communicating within a cell on a traffic channel with a subscriber unit. The subscriber unit monitors a signal level of a broadcast channel associated with the cell. The method also comprises the steps of measuring a demand for communication services within the cell and changing the signal level in response to the measuring step. The subscriber unit is

responsive to the signal level of the broadcast channel. This passage also discloses providing a method of controlling cell loading in a cellular communication system comprising the steps of measuring real-time demand for communication services within each cell of the system and dynamically adjusting for each of the cells a signal level of a broadcast channel associated with each cell in response to the real-time demand. The adjusting step causes subscriber units monitoring the signal level to request a handoff to transfer to an adjacent cell.

As mentioned above, Redden discloses changing the power of a broadcast signal to effectively vary the size of a cell. There is no disclosure of varying the data carrying capacity of the broadcast signal nor is there any basis in this document for doing so. As disclosed by Redden, the solution to preventing over demand for communications within a particular cell is provided by simply reducing the power of the broadcast signal transmitted by the satellite. Furthermore, there is no disclosure or suggestion in this document of controlling the data carrying capacity of any of the traffic channels which carry data between the satellite and subscriber units.

Claim 1 further specifies that the controller controls the data carrying capacity of the signal based on one or more of (1) a condition of the wireless signal received by a wireless receiver, and (2) an indication of a condition in the path of the wireless signal which affects transmission of the wireless signal. Again, there is no disclosure or suggestion in Redden of an apparatus having a controller for controlling the data carrying capacity of a wireless signal based on a condition of the wireless signal received by a wireless receiver or an indication of a condition in the path of the wireless signal which affects its transmission.

For at least these reasons, we submit that claim1 is both novel and inventive over Redden.

Referring to the Examiner's statement that Redden discloses control means adapted to control at least one parameter defining the data carrying signal in column 7, lines 12 to 60, it is to be noted that original claim 2 (new claim 93) further specifies that the controller is adapted to control at least one parameter defining the data carrying signal to vary the capacity. Applicant

submits that there is no disclosure in column 7, lines 12 to 60 (or in any other part of this document) which discloses a controller which controls at least one parameter of a data carrying signal which varies the data carrying capacity of the signal.

Referring to the Examiner's statement that Redden further discloses encoding means via controller 84 and processor 60 (column 7, lines 12 to 60), column 7, lines 22 to 25 states that "subscriber-link transceivers are desirably multi-channel FDMA/TDMA transceivers capable of transmitting and receiving on all different selectable frequencies during particular selectable, time-slots as directed by controller 84". In contrast, original claim 4 (new claim 97) specifies that the controller for controlling the data carrying capacity of the signal includes encoding means for inserting code into the data, and code control means for controlling the quantity of code inserted into the data. Applicant submits that there is no disclosure in Redden of any controller which controls the data carrying capacity of a wireless signal by controlling the quantity of code inserted into the data. In the embodiment of new claim 97, the capacity of the channel or wireless transmission signal for carrying actual data as opposed to data plus code may be varied by varying the proportion of bits which are dedicated to code, as described in the present specification on page 17, lines 9 to 14. Advantageously, where the code comprises error correction code, inserting more error correction code into the data carried by the wireless signal increases the ability of errors in the received signal to be corrected, effectively increasing the signal to noise ratio of the received signal and enhancing the resiliency of the wireless transmission channel to adverse conditions, as described in the present specification on page 20, lines 14 to 19.

Referring to the Examiner's novelty objections to original claims 2 and 3 (new claims 6 and 7), claim 2 (new claim 6) has been amended to specify that the controller is adapted to control modulation of at least one parameter defining the data carrying signal to vary the data carrying capacity of the signal, and claim 7 remains unchanged, specifying that the parameter is at least one of amplitude and phase. In this embodiment, data, for example, in a particular sequence of a given number of binary bits is represented by a particular phase and/or amplitude of a signal and the number of bits that can be represented by each or both of these parameters

depends on the particular modulation scheme used. Modulation schemes include, for example any form of amplitude shift keying (ASK) or phase shift keying (PSK) or a combination of both, as described in the present specification from page 14, line 25 to page 15, line 25, for example.

New claims 89 to 106 being dependent on claim 1 are also both novel and inventive over the prior art by virtue of their dependency. In addition, new claims 89 to 106 recite additional features which are neither taught nor suggested by Redden and therefore patentably distinguish over this document by virtue of the additional distinguishing features recited therein.

US 5,914,950 (Tiedemann, Jr., et al.), cited by the Examiner discloses a method and apparatus for reverse link rate scheduling to allow selected subscriber mobile units to transmit data at a higher data rate than normally permitted if spare capacity is available within a particular cell. Mobile units having data to send at a higher rate transmit a request for a scheduled transmission at the higher rate and a scheduled data transmission rate for each subscriber unit is allocated on a priority basis. On receiving permission to transmit data at the higher, scheduled data rate, the mobile subscriber unit increases its power and transmits the data at the higher rate. The error rate of signals from the mobile units are monitored and down-link control signals from the base station are used to control the power of the wireless signal transmitted from the mobile units to maintain the quality of the transmitted signal from the mobile units at a predetermined level.

We submit that there is no disclosure or suggestion in this document of an apparatus comprising the combination of features defined in claim 1, and in particular no disclosure of a controller for controlling the data carrying capacity of a wireless signal based on a condition of the wireless signal received by a wireless receiver or an indication of a condition in the path of the wireless signal which affects transmission of the wireless signal. Rather, this document only discloses maintaining the quality of the signal at a predetermined level by controlling the power of the transmitted signal. For at least these reasons, applicant submits that new claim 1 is both novel and inventive over Tiedemann.

Amended claim 12 is directed to a fixed-position wireless transmitter for generating a signal for wireless transmission comprising signal generating means for receiving data and generating a signal containing received data for wireless transmission at a frequency at or above 2 GHz which causes the wireless signal to be attenuated by atmospheric precipitation, monitoring means for monitoring the quantity of data supplied to the signal generating means for wireless transmission and control means for controlling the power of the generated wireless signal within a range to compensate for attenuation by atmospheric precipitation in response to the monitored quantity of the data for wireless transmission.

Advantageously, the transmitter defined in claim 12 allows the additional power of the transmitter normally reserved to compensate for rain attenuation to be used to transmit data at higher data rates in a communication system of fixed-position wireless transmitters. Applicant submits that there is no disclosure or suggestion of such an arrangement in either Redden or Tiedemann. Both of these references are concerned with mobile subscriber units which operate at frequencies which are not affected by rain and therefore do not suffer or relate to the same problem addressed by the present invention as defined by claim 12.

Independent claim 17 is directed to a fixed-position transmitter for generating and transmitting a wireless communication signal, the transmitter including signal control means for varying the power of the communication signal and limiting means for limiting the control means to control the power to substantially prevent interference by the wireless communication signal of a second wireless communication signal from another fixed-position transmitter. Again, applicant submits that there is no disclosure or suggestion of a transmitter as defined in claim 17 in either Redden or Tiedemann, and that therefore claim 17 is both novel and inventive over the prior art.

Claim 45 is directed to a transmitter for generating a communication signal for wireless transmission, comprising monitoring means for monitoring a quality of the wireless communication signal and capacity control means for controlling the data carrying capacity of the wireless communication signal in response to the monitored quality. Applicant submits that

claim 45 is both novel and inventive over both Redden and Tiedemann for the same reasons as new claim 1 is both novel and inventive over these documents.

New claim 51 is directed to a controller for controlling the operation of a fixed-position wireless transmitter in a wireless communication network containing a plurality of fixed-position wireless transmitters comprising monitoring means for monitoring interference of a communication channel associated with a fixed-position wireless transmitter by a wireless signal from another fixed-position wireless transmitter, signal generating means for generating a signal indicative of interference and identifying the other wireless transmitter, and transmitting means for transmitting the interference indicating signal to the transmitter transmitting the wireless signal causing the interference to control the level of interference. Applicant submits that there is no disclosure or suggestion of a controller which monitors interference of one fixed position transmitter by another fixed-position transmitter, identifies the transmitter causing the interference and transmits an interference indicating signal to the transmitter causing the interference in either Redden or Tiedemann. For at least these reasons, applicant submits that claim 51 is both novel and inventive over the prior art.

Claim 55 is directed to a controller for controlling the operation of a fixed-position wireless transmitter in a wireless communication network containing a plurality of fixed-position wireless transmitters, comprising monitoring means for monitoring a signal indicative of a power level of a wireless communication signal transmitted by a transmitter, comparing means for comparing the power level with a predetermined value, and transmitting means for transmitting a signal to the transmitter in response to the comparison indicative of the result of the comparison. Again, applicant submits that there is no disclosure or suggestion of a controller as defined in claim 55 in either Redden or Tiedemann and that claim 55 is both novel and inventive over the prior art.

Independent claim 62 is directed to a controller for controlling the operation of a fixed-position wireless transmitter in a wireless communication network having a plurality of fixed-position wireless transmitters, comprising receiving means for receiving a signal indicative

of a power level for a wireless communication signal from a transmitter in the network, and transmitting means for transmitting a signal in response to the received signal to another transmitter in the network for enabling the transmitter to increase the power level of its wireless transmission signal. Applicant submits that there is no disclosure in either Redden or Tiedemann of a controller as defined in claim 62 which enables one of the fixed position transmitters to increase its power level based on the power level of a wireless communication signal from another fixed-position transmitter.

Claim 68 is directed to a method of generating a signal for carrying data for wireless transmission and is a complementary claim to claim 45. Applicant submits that claim 68 is both novel and inventive over the prior art for the same reason as both claims 45 and claim 1.

Independent method claim 69 is a complementary claim to independent claim 51 and applicant submits that claim 69 patentably distinguishes over the prior art for the same reason that claim 51 patentably distinguishes over the prior art.

Independent claim 70 is directed to a method of determining an acceptable level of transmission power for each of a plurality of fixed-position transmitters in a wireless communication network. Applicant submits that there is no disclosure of suggestion of such a method in either Redden or Tiedemann, and that claim 70 is both novel and inventive over the prior art.

New independent claim 71 is based on original claim 71 and includes the additional features of claim 72. Applicant submits that there is no disclosure or suggestion in either Redden or Tiedemann of an apparatus as defined in new claim 71 in which the data rate is controlled by controlling the quantity of code inserted into the data in response to the monitored quantity of data for wireless transmission.

New independent claims 86 and 87 are directed to a communication system comprising, *inter alia*, first and second fixed-position wireless transmitters and communication means for

communicating a signal indicative of the power level of one transmitter to the other to enable the data transmission rate to be increased or the output power level to be varied in response to the signal, and we submit that there is no disclosure or suggestion of such a communication system in either Redden or Tiedemann. Accordingly, both claims 86 and 87 are novel and inventive over the prior art.

New claim 88 is directed to a communication system comprising a fixed-position transmitter and a fixed-position receiver, means responsive to the attenuation of the wireless signal and/or the presence of a potentially attenuating medium in the path of the signal for causing the output level of the wireless transmission signal to be increased when the attenuation reaches a predetermined level and/or the presence of the potentially attenuating medium is detected, detection means for detecting interference of another signal by the wireless transmission signal and control means for reducing the power level of the transmission signal output by the transmitter in response to the detection of the interference above an acceptable level. Applicant submits that there is no disclosure or suggestion of a communication system as defined in claim 88 in either Redden or Tiedemann and that claim 88 is both novel and inventive over the prior art.

Obviousness Objection under 35 U.S.C. Paragraph 103

Referring to the Examiner's obviousness objection to claims 7, 42, 73 and 74 under 35 U.S.C. 103(a), the Examiner states that Redden discloses an apparatus/transmitter/controller/method of claim 6. Original claim 6 is dependent on claim 1 and for at least the reasons stated above in connection with claim 1, applicant submits that an apparatus according to claim 6 is neither disclosed nor suggested by Redden. Claim 6 further specifies that the control means (which controls the data carrying capacity of the signal) controls the capacity based on a condition of the wireless signal received by a wireless receiver, as recited in new claim 1. However, for reasons stated above, there is no disclosure in Redden of any controller which controls the data carrying capacity of a wireless signal. Furthermore, there is no disclosure that the capacity of any wireless signal is controlled based on a condition of the

wireless signal received by a wireless receiver. Redden discloses that the power of a satellite broadcast signal is varied to control cell size. There is no disclosure of any controller which controls the data carrying capacity of the broadcast signal. Furthermore, there is no disclosure that the data carrying capacity of the broadcast signal is controlled based on the condition of the broadcast signal received by a subscriber unit. Rather, it is the power of the broadcast signal which is controlled in response to the demand for communication with the satellite within the cell area. As there is no disclosure of controlling the data carrying capacity of the broadcast signal or any other signal based on a condition of the received signal, there is also no disclosure in Redden of controlling the data carrying capacity of any signal in response to a measurement of error in the received signal as recited in original claim 7 (new claim 92). The Examiner acknowledges that Redden fails to disclose error measurement for controlling the capacity of the system. It is to be noted that none of the claims are concerned with controlling the capacity of the system. Rather, the claims specify 'the data carrying capacity of a wireless signal'.

Advantageously, the ability to vary the data carrying capacity of the signal based on the condition of the wireless signal received by a wireless receiver or an indication of the condition in the path of the wireless signal which effects transmission of a wireless signal enables the data carrying capacity to be reduced in the presence of adverse conditions such as caused by rain, other precipitation or signal attenuating media in the signal path thereby increasing the reliability of the communication channel and making it more resilient to interference or attenuation caused by adverse conditions and increasing the availability of the communication link over existing systems, as described for example on page 5, lines 24 to 28. Furthermore, it removes the need for more powerful and expensive amplifiers and increases tolerance of interference by other signals, thereby allowing other transmitters to transmit at higher data rates without disrupting other communications.

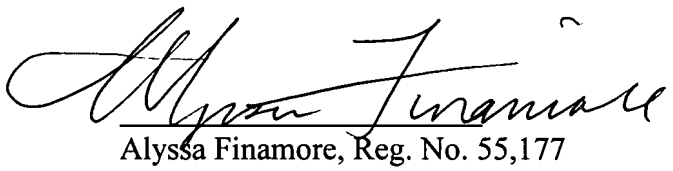
For at least these reasons, Applicant submits that all of the claims now presented are both novel and inventive over the prior art.

In view of the foregoing, early favorable consideration of this application is earnestly

solicited.

Respectfully submitted,

DOWELL & DOWELL, P.C.



Alyssa Finamore, Reg. No. 55,177

DOWELL & DOWELL, P.C.
Suite 406, 2111 Eisenhower Avenue
Alexandria, VA 22314
Telephone: (703) 415-2555

Date: April 13, 2007